

IN THE CLAIMS:

Kindly cancel claims 1-6 without prejudice or admission and add new claims 7-24 as shown in the following listing of claims, which replaces all previous versions and listings of claims in this application.

1. - 6. (canceled).

7. (new) A permanent magnet formed of an Sm-Co based magnetic material and having an inner diameter or an outer diameter of 20 mm or less and a plurality of magnetic domains magnetized in a radial direction and arranged at regular intervals in a circumferential direction.

8. (new) A permanent magnet according to claim 7; wherein the magnetic domains have aligned magnetizing directions.

9. (new) A magnet for a rotor of a motor, the magnet comprising: a cylindrical-shaped permanent magnet having a plurality of magnetic domains magnetized in a radial direction and arranged at regular intervals in a circumferential direction; wherein a thickness t in the radial direction of the permanent magnet satisfies the relation of $t \leq \pi D / (NM - \pi)$, where D represents an inner diameter of the permanent magnet having a value of 20 mm or less, N represents

the number of the magnetic domains, and M represents the number of alternating current phases for driving the motor.

10. (new) A magnet according to claim 8; wherein the permanent magnet is formed of an Sm-Co based magnetic material.

11. (new) A magnet according to claim 8; wherein the magnetic domains of the permanent magnet have aligned magnetizing directions.

12. (new) A motor comprising:

a rotor portion having a rotational body, a rotational shaft arranged on an axial line of the rotational body, and a permanent magnet arranged around the rotational body, the permanent magnet being formed of an Sm-Co based magnetic material and having an inner diameter or an outer diameter of 20 mm or less and a plurality of magnetic domains magnetized in a radial direction and arranged at regular intervals in a circumferential direction;

a stator portion having a plurality of stator coils confronting the permanent magnet and being excitable with alternating current; and

a bearing portion rotatably and pivotally supporting the rotational shaft relative to the stator portion so that the rotational body and the stator coils are concentric to each other.

13. (new) A motor according to claim 12; wherein the rotational body is symmetrical about the axial line thereof.

14. (new) A motor according to claim 12; wherein the permanent magnet is generally cylindrical-shaped.

15. (new) A motor according to claim 12; wherein the permanent magnet has aligned magnetizing directions.

16. (new) A motor comprising:

a rotor portion having a rotational body, a rotational shaft arranged on an axial line of the rotational body, and a permanent magnet arranged around the rotational body, the permanent magnet having a plurality of magnetic domains magnetized in a radial direction and arranged at regular intervals in a circumferential direction, a thickness t in the radial direction of the permanent magnet satisfying the relation of $t \leq \pi D / (NM - \pi)$, where D represents an inner diameter of the permanent magnet having a value of 20 mm or less, N represents the number of the magnetic domains, and M represents the number of alternating current phases for driving the motor;

a stator portion having a plurality of stator coils confronting the permanent magnet and being excitable with alternating current; and

a bearing portion rotatably and pivotally supporting the rotational shaft relative to the stator portion so that the rotational body and the stator coils are concentric to each other.

17. (new) A motor according to claim 16; wherein the rotational body is symmetrical about the axial line thereof.

18. (new) A motor according to claim 16; wherein the permanent magnet is generally cylindrical-shaped.

19. (new) A motor according to claim 16; wherein the permanent magnet has aligned magnetizing directions.

20. (new) A motor according to claim 16; wherein the permanent magnet is formed of an Sm-Co based magnetic material.

21. (new) A method for magnetizing a permanent magnet for a motor, comprising the steps of:

providing a permanent magnet having a thickness t in a radial direction of the permanent magnet satisfying the relation of $t \leq \pi D / (NM - \pi)$, where D represents an inner diameter of the permanent magnet having a value of 20 mm or less, N represents a number of magnetic domains of the permanent magnet, and M represents the number of alternating current phases for driving the motor;

a first magnetizing step of magnetizing the permanent magnet in one direction corresponding to the radial direction; and

a second magnetizing step of magnetizing the permanent magnet magnetized in the first magnetizing step to form magnetic domains magnetized and arranged at regular intervals in the radial direction.

22. (new) A method according to claim 21; wherein the permanent magnet is generally cylindrical-shaped.

23. (new) A method according to claim 21; wherein the second magnetizing step includes the step of forming the magnetic domains of the permanent magnet with aligned magnetizing directions.

24. (new) A method according to claim 21; wherein the permanent magnet is formed of an Sm-Co based magnetic material.